

## **CimeXa Insecticide Dust and Amorphous Silica**

### ***What is Amorphous Silica? Are All Silicas the Same?***

CimeXa Insecticide Dust is comprised of 92.1% silicon dioxide as synthetic amorphous silica. The chemical formula for silicon dioxide is SiO<sub>2</sub>. Silicon dioxide and numerous silicate minerals are ubiquitous in nature. The most prevalent mineral component of common sand is silicon dioxide, in the form of ground quartz. Sand, however, won't kill bugs!

Synthetic Amorphous Silica is made by a controlled mixture of sodium silicate (a substance made from quartz) and acid. This wet blend is then neutralized and purified in a washing process, dried and milled.

Amorphous Silica has been known since the 1600s and has a very large number of uses. It is FDA GRAS (Generally Recognized As Safe) listed and may be used as a food additive. It is used widely as a desiccant (e.g. silica packets found in products and a component of cat litter), a preservation agent, a catalyst, a purifying agent, and many other industrial and consumer product uses.

While crystalline silica dust, and certain natural forms of silica such as diatomaceous earth which can have crystalline components can cause silicosis if breathed chronically, synthetic amorphous (amorphous means non-crystalline) silica does not have crystalline structure and does not cause silicosis. Amorphous silica does normally have desiccating (drying) properties, so inhalation of dust during application can be irritating and should be minimized (a particulate dust mask is recommended for application). Chronic contact with skin, and eye contact, can also cause irritation due to the drying effect.

There are many different forms and grades of amorphous silica that are produced to have very specific properties for different applications. For example, the silica beads typically used in desiccant packs found in products would not be particularly useful for insecticide uses. The amorphous silica used in CimeXa is engineered to have very specific properties for making a good insecticide. CimeXa has very strong absorption of water and oil, but not ambient humidity, so it attacks the insect's waxy cuticle and dries them out. And contrary to diatomaceous earth which cuts insects, and therefore has repellency which is a negative feature for certain insecticide applications, CimeXa is a pure desiccant. CimeXa does not cut and does not have direct repellency effects which would keep insects from contacting it sufficiently to be killed.

Additional information on amorphous silica gel may be found in the US EPA Re-registration Eligibility Decision (RED) Facts Sheet for Silica (Silicon Dioxide and Silica Gel).

<https://archive.epa.gov/pesticides/reregistration/web/pdf/4081fact.pdf>